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| 10/611,692      | 07/01/2003  | Neal Kenneth Jacobs  | PU030182            | 4429             |

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EXAMINER

HAN, JASON

ART UNIT PAPER NUMBER

2875

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/611,692

Applicant(s)

JACOBS ET AL.

Examiner

Jason M Han

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title is convoluted and sounds awkward. Please consider revising.

The following title is suggested: Light Pipe for Remote Control Keypad Back Lighting.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 3-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (U.S. Patent No. 5568367) in view of Kuhfus (U.S. Patent No. 4349705).

With regards to Claim 1, Park discloses a remote control with key lighting comprising of a housing [Figure 4, (8)] that has a top cover [Figure 4, (14)] with a plurality of apertures [Figure 4, (16)] and a bottom cover [Figure 4, (10)], a circuit board [Figure 4, (20)] having a light emitting diode [Figure 4, (21)], a keypad having a base with a plurality of buttons extending through said apertures of top cover [Figure 4, (26)], and a translucent fixing plate that functions as a light

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guide/pipe [Figures 4 and 6, (40); Column 5, Lines 1-14; Claim 9, Column 7, Lines 25-29].

Park does not specifically disclose said light pipe positioned between the top cover of the housing and the keypad.

Kuhfus discloses a similar embodiment for a telephone dial wherein a light guide/pipe [Figure 1, (25)] is positioned between a top cover [Figure 1, (30)] and a keypad [Figure 1, (21)].

It would have been obvious to modify the remote control with keypad lighting of Park with the light guide/pipe of Kuhfus positioned on top of said keypad, so as to provide adequate dispersion of light and illumination of keys. The actual location of said light guide/pipe, whether on top or below of the keypad, is negligible in the embodiments described, whereby the function and means for illumination are similar. In addition, please note U.S. Patent No. 4636593 to Novak et al. To quote Novak, "In the prior art, elastomeric membrane keypads were typically used together with a hard plastic lightpipe for illuminating the keys thereon. The lightpipe is located between the keypad and the housing of the keypad [Column 1, Lines 14-18]."

4. With regards to Claim 3, Park discloses light emitting diodes [Figure 4, (21)] surface mounted to the circuit board [Figure 4, (20)].
5. With regards to Claim 4, Kuhfus [Figure 1, (26)] provides a light guide/pipe with apertures corresponding to the buttons of the keypad.
6. With regard to Claims 5-8, Kuhfus teaches, "Various ways of holding the assembly together can be used. As an example, protrusions (dividers) molded

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on the back or under surface of the bezel 30 (top cover) can be passed through holes in the other members and the protrusions molded over on the back or undersurface of the PCB 10 [Column 2, Lines 7-11; underlines added by examiner].” It is obvious that said protrusions/dividers of the bezel would thereby contact the light pipe, the base of the keypad through cut-outs in the light pipe, and the base of the keypad.

7. With regards to Claim 9, Kuhfus [Figure 2, (27) and (35)-(40)] discloses a light dispersing slot/groove corresponding to at least one surface mounted light emitting diode.

8. With regards to Claim 10, both Park [Figure 4, (30)-(32); Column 3, Line 55-Column 4, Line 44] and Kuhfus [Figure 1, (10)-(17); Column 1, Lines 45-56] disclose buttons with contacts that correspond to conductive contacts on the circuit board.

9. With regards to Claim 11, Park [Figures 3 and 4] and Kuhfus [Figure 1] disclose a light guide/pipe that is the same size as the keypad.

10. Claims 1-4 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (U.S. Patent No. 5568367) in view of Pasco (U.S. Patent No. 5053928).

With regards to Claim 1, Park discloses a remote control with key lighting comprising of a housing [Figure 4, (8)] that has a top cover [Figure 4, (14)] with a plurality of apertures [Figure 4, (16)] and a bottom cover [Figure 4, (10)], a circuit board [Figure 4, (20)] having a light emitting diode [Figure 4, (21)], a keypad having a base with a plurality of buttons extending through said apertures of top

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cover [Figure 4, (26)], and a translucent fixing plate that functions as a light guide/pipe [Figures 4 and 6, (40); Column 5, Lines 1-14; Claim 9, Column 7, Lines 25-29].

Park does not specifically disclose said light pipe positioned between the top cover of the housing and the keypad.

Pasco discloses a similar embodiment wherein a light guide/pipe [Figure 1, (1)] is positioned on top of a keypad [Figure 2, (3)-(5)]. Pasco further teaches that said light guide/pipe is comprised within a housing – “when the main casing of the equipment into which the light guide is to be incorporated has a complementary contour either for aesthetic or functional reasons. The light guide 1 can thus be accommodated in close fitting relationship to the equipment casing [Column 6, Lines 63-69].”

It would have been obvious to modify the remote control with keypad lighting of Park with the light guide/pipe of Pasco positioned on top of said keypad, so as to provide adequate dispersion of light and illumination of keys.

11. With regards to Claim 2, Pasco provides a slot [Figure 3, (7)] corresponding to the light emitting diode. Also, given the configuration whereby the light guide/pipe is located on top of the keypad, it is an obvious engineering design that a corresponding slot is provided on said keypad for an LED or its light path.

12. With regards to Claim 3, Park discloses light emitting diodes [Figure 4, (21)] surface mounted to the circuit board [Figure 4, (20)].

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13. With regards to Claim 4, Pasco [Figure 2] provides a light guide/pipe with apertures corresponding to the buttons of the keypad.

14. With regards to Claim 9, Pasco [Figure 1, (7)-(8)] discloses a light dispersing slot/groove corresponding to at least one surface mounted light emitting diode.

15. With regards to Claim 10, Park [Figure 4, (30)-(32); Column 3, Line 55-Column 4, Line 44] discloses buttons with contacts that correspond to conductive contacts on the circuit board.

16. With regards to Claim 11, Park [Figures 3 and 4] and Pasco [Figures 1-6] disclose a light guide/pipe that is the same size as the keypad.

17. Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novak et al. (U.S. Patent No. 4636593) in view of Kuhfus (U.S. Patent No. 4349705).

With regards to Claim 12, Novak discloses a light conducting, elastometric membrane keypad comprising of a housing [Figure 4, (110)], a circuit board [Figure 4, (130)] having a light emitting diode [Figure 4, (410) and (420)], a keypad [Figure 4, (122)] having a base positioned on a top surface of said circuit board, and whereby the base has a plurality of buttons [Figure 4, (124)] extending away from the circuit board and at least one slot [Figure 4, (210)] corresponding to the LED.

Novak does not disclose a light pipe having apertures corresponding to the buttons on a keypad.

Kuhfus discloses an embodiment for a telephone dial wherein a light guide/pipe [Figure 1, (25)] has apertures [Figure 1, (26)] corresponding to the buttons on a keypad [Figure 1, (22)].

It would have been obvious to modify the light conducting, elastometric membrane keypad of Novak to include the light guide/pipe of Kuhfus, so as to provide greater dispersion of light and illumination of keys.

18. With regards to Claim 13, Novak discloses a housing wherein a top cover has a plurality of apertures corresponding to and receiving the buttons of a keypad [Figure 1, (110)].

19. With regard to Claims 14-16, Kuhfus teaches, "Various ways of holding the assembly together can be used. As an example, protrusions (dividers) molded on the back or under surface of the bezel 30 (top cover) can be passed through holes in the other members and the protrusions molded over on the back or undersurface of the PCB 10 [Column 2, Lines 7-11; underlines added by examiner]." It is obvious that said protrusions/dividers of the bezel would thereby contact the light pipe, as well as the base of the keypad through cut-outs in the light pipe.

20. With regards to Claim 17, Kuhfus [Figure 2, (27a) and (27c), (27b) and (27d)] discloses light emitting diodes arranged along a longitudinal axis of a circuit board.

21. With regards to Claim 18, Kuhfus [Figure 1] discloses a light guide/pipe that is the same size as the keypad.



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22. With regards to Claim 19, both Novak [Figures 3 and 4, (220)] and Kuhfus [Figure 1, (10)-(17); Column 1, Lines 45-56] disclose buttons with contacts that correspond to conductive contacts on the circuit board.

23. With regards to Claim 20, Kuhfus [Figure 2, (27) and (35)-(40)] discloses a light dispersing slot/groove corresponding to at least one surface mounted light emitting diode.

24. Claims 12-13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novak et al. (U.S. Patent No. 4636593) in view of Pasco (U.S. Patent No. 5053928).

With regards to Claim 12, Novak discloses a light conducting, elastometric membrane keypad comprising of a housing [Figure 4, (110)], a circuit board [Figure 4, (130)] having a light emitting diode [Figure 4, (410) and (420)], a keypad [Figure 4, (122)] having a base positioned on a top surface of said circuit board, and whereby the base has a plurality of buttons [Figure 4, (124)] extending away from the circuit board and at least one slot [Figure 4, (210)] corresponding to the LED.

Novak does not disclose a light pipe having apertures corresponding to the buttons on a keypad.

Pasco discloses a similar embodiment wherein a light guide/pipe [Figure 1, (1)] is positioned on top of a keypad [Figure 2, (3)-(5)]. Pasco further teaches that said light guide/pipe is comprised within a housing – “when the main casing of the equipment into which the light guide is to be incorporated has a complementary contour either for aesthetic or functional reasons. The light guide

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1 can thus be accommodated in close fitting relationship to the equipment casing [Column 6, Lines 63-69].”

It would have been obvious to modify the light conducting, elastometric membrane keypad of Novak to include the light guide/pipe of Pasco, so as to provide greater dispersion of light and illumination of keys.

25. With regards to Claim 13, Novak discloses a housing wherein a top cover has a plurality of apertures corresponding to and receiving the buttons of a keypad [Figure 1, (110)].

26. With regards to Claim 17, Pasco [Figure 3, (6)] discloses light emitting diodes arranged along a longitudinal axis of a circuit board.

27. With regards to Claim 18, Pasco [Figures 1-6] discloses a light guide/pipe that is the same size as the keypad.

28. With regards to Claim 19, Novak [Figures 3 and 4, (220)] discloses buttons with contacts that correspond to conductive contacts on the circuit board.

29. With regards to Claim 20, Pasco [Figure 1, (7)-(8)] discloses a light dispersing slot/groove corresponding to at least one surface mounted light emitting diode.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to the current application:

U.S. Patent No. 6006118 to Stephenson;

U.S. Patent No. 5153590 to Charlier;

U.S. Patent No. 5746493 to Jönsson et al.;


U.S. Patent No. 4124879 to Schoemer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH



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